

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
11 March 2004 (11.03.2004)

PCT

(10) International Publication Number
WO 2004/020249 A3

(51) International Patent Classification⁷: **B60R 11/00**

(21) International Application Number:
PCT/US2003/026995

(22) International Filing Date: 26 August 2003 (26.08.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data: *27 Feb 05*
60/406,243 27 August 2002 (27.08.2002) US

(71) Applicant (for all designated States except US): **JOHN-SON CONTROLS TECHNOLOGY COMPANY**
[US/US]; 49200 Halyard Drive, Plymouth, MI 48170 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **HUISINGH, Jack**
[US/US]; 6450 Oakridge Lane, Holland, MI 49423 (US).
GORT, Dale, A. [US/US]; 234 Norwood, Holland, MI 49424 (US).

(74) Agent: **LAZARUS, John, M.**; Foley & Lardner, 777 East Wisconsin Avenue, Milwaukee, WI 53202-5306 (US).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,

CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

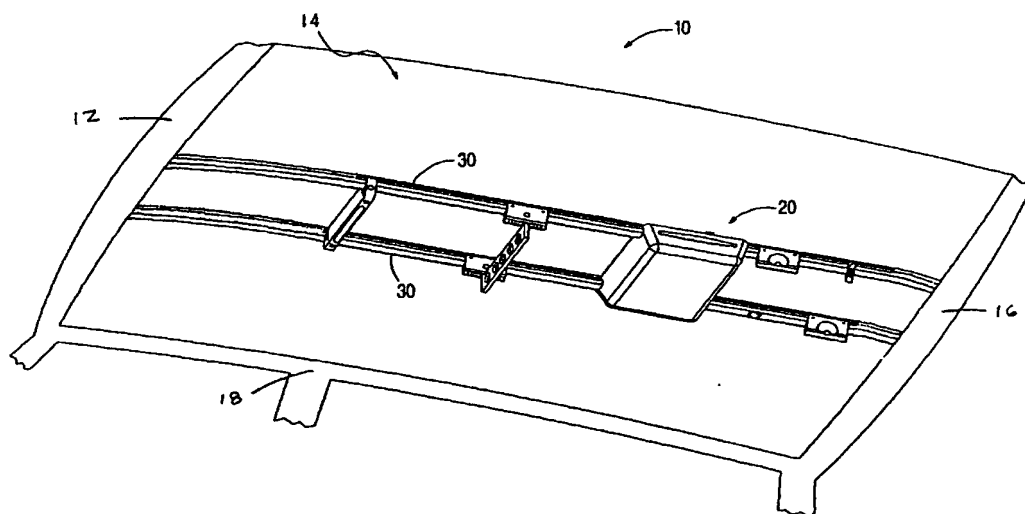
Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
12 August 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **TRANSPARENT VEHICLE ROOF WITH ARRANGEMENT FOR RECEIVING ARTICLES**



(57) Abstract: An overhead system for a vehicle includes a generally transparent panel (14) covering a portion of the roof area of the vehicle, and at least one elongated member (30) coupled to at least one of the generally transparent panel (14) and a structural portion of the vehicle (12, 16). A system for attaching articles to an overhead portion of an interior of a vehicle includes a generally transparent panel (14) covering a portion of a roof of the vehicle, with at least one elongated member (30) engaging the generally transparent panel (14), and at least one article adapted for mounting to the elongated member.

WO 2004/020249 A3

INTERNATIONAL SEARCH REPORT

.....onal Application No
PCT/US 03/26995

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B60R11/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B60R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/021029 A1 (BECHER THOMAS ET AL) 21 February 2002 (2002-02-21)	1-3,7,14
Y	paragraph [0019] - paragraph [0030]; figures	4
Y	US 6 231 111 B1 (RANKIN III JOSEPH D ET AL) 15 May 2001 (2001-05-15) column 3, line 37 - column 10, line 40; figures	4

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

6 January 2004

Date of mailing of the international search report

- 4 06 2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

David, P

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 03/26995

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-4, 7, 14

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-4,7,14

US2002/0021029 A (D1 in the following) discloses (see 19 to 30, figures) an overhead system for a vehicle, comprising:
a substantially transparent panel 5 adapted to cover a portion of a roof area of the vehicle;
one elongated member 2 adapted to couple to the substantially transparent panel 5 and a structural portion 6 of the vehicle;
wherein the elongated member 2 is configured to receive one article 17 for use within the vehicle.
D1 disclosed therefore the features of independent claim 1.
D1 discloses also the features of dependent claims:
2 (see D1, fig. 4), actually that the elongated member 2 is coupled to the substantially transparent panel 5 and to 7, 8 the structural portion 6 of the vehicle;
3 (see D1, fig. 1), actually that the substantially transparent panel 5 is adapted to cover substantially all of the roof portion of the vehicle;
7 (see D1, figures), actually that the substantially transparent panel 5 is formed in a shape having a contour and the elongated member 2 is formed having a profile adapted to fit the contour;
14 (see D1, figures), actually that the elongated members 2, 3, 4 are a multi-piece structure.

The additional features of dependent claim 4 are not disclosed by D1 and therefore can be seen to make the following contribution over this prior art (Special Technical Features (STF), (Rule 13.2 PCT)): the substantially transparent panel comprises a shielded section configured to at least partially conceal the presence of the elongated member.

From these STF the objective problem to be solved by the 1st invention can be construed as: how to conceal the presence of the elongated member when viewed from a location external to the vehicle.

2. claims: 5, 6

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

The additional features of dependent claim 5 are not disclosed by D1 and therefore can be seen to make the following contribution over this prior art (Special Technical Features (STF), (Rule 13.2 PCT)): the elongated member is at least partially conductive for transmission of electricity.

The additional features of dependent claim 6 are not disclosed by D1 and therefore can be seen to make the following contribution over this prior art (Special Technical Features (STF), (Rule 13.2 PCT)): the elongated member comprises a passageway for routing utility carriers to the article.

From these STF the objective problem to be solved by the 2nd invention can be construed as: how to transmit electrical power to the article mounted on the elongated member.

3. claims: 8, 9, 16

The additional features of dependent claim 8 are not disclosed by D1 and therefore can be seen to make the following contribution over this prior art (Special Technical Features (STF), (Rule 13.2 PCT)): the elongated member comprises a recess adapted to receive a fastener provided on the article for releasably securing the article to the elongated member.

The additional features of dependent claim 9 are not disclosed by D1 and therefore can be seen to make the following contribution over this prior art (Special Technical Features (STF), (Rule 13.2 PCT)): the elongated member includes an interlock to permit placement of articles on the elongated members only at certain predetermined locations.

The additional features of dependent claim 16 are not disclosed by D1 and therefore can be seen to make the following contribution over this prior art (Special Technical Features (STF), (Rule 13.2 PCT)): the elongated member comprises a plurality of apertures configured for engagement with at least one projection coupled to the article.

From these STF the objective problem to be solved by the 3rd invention can be construed as: how to facilitate the mounting of the article on the elongated member.

4. claim: 10

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

The additional features of dependent claim 10 are not disclosed by D1 and therefore can be seen to make the following contribution over this prior art (Special Technical Features (STF), (Rule 13.2 PCT)): the substantially transparent panel includes at least one of a photochromic, an electrochromic and an eletro-chemochromic light filtration device.

From these STF the objective problem to be solved by the 4th invention can be construed as: how to determine the light filtration characteristics of the panel.

5. claim: 11

The additional features of dependent claim 11 are not disclosed by D1 and therefore can be seen to make the following contribution over this prior art (Special Technical Features (STF), (Rule 13.2 PCT)): the substantially transparent panel comprises a portion that is capable of opening.

From these STF the objective problem to be solved by the 5th invention can be construed as: how to transform the panel in a sunroof.

6. claim: 12

The additional features of dependent claim 12 are not disclosed by D1 and therefore can be seen to make the following contribution over this prior art (Special Technical Features (STF), (Rule 13.2 PCT)): the substantially transparent panel is removable.

From these STF the objective problem to be solved by the 6th invention can be construed as: how to provide an open vehicle.

7. claims: 13, 15

The additional features of dependent claim 13 are not disclosed by D1 and therefore can be seen to make the following contribution over this prior art (Special Technical Features (STF), (Rule 13.2 PCT)): the overhead system further comprises a trim piece interfacing with the substantially transparent panel and the elongated member.

The additional features of dependent claim 15 are not disclosed by D1 and therefore can be seen to make the following contribution over this prior art (Special Technical Features (STF), (Rule 13.2 PCT)): the elongated members are removably attached to the vehicle by a quick-disconnect device.

From these STF the objective problem to be solved by the 7th invention can be construed as: how to find an alternative to the mounting of the elongated member on the panel.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/26995

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 2002021029	A1	21-02-2002	DE	10039522 A1	28-02-2002
			EP	1180471 A2	20-02-2002
			JP	2002104240 A	10-04-2002

US 6231111	B1	15-05-2001	US	6019411 A	01-02-2000
			US	5667896 A	16-09-1997
			US	2003098595 A1	29-05-2003
			US	2001001346 A1	24-05-2001
			US	2002111410 A1	15-08-2002
			US	6068719 A	30-05-2000
			US	6319344 B1	20-11-2001
			US	5853895 A	29-12-1998
